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FACILITY CONTROL COMPONENT OF A COMPUTER SYSTEM

BACKGROUND OF THE INVENTION

Processor platforms in a computer system, for example a multi-computer system, must communicate with one another. This ~~ensues~~ occurs with communication channels via which SW applications exchange messages with one another. Due to different HW/SW functionalities of the processor platforms in a system, different communication channels of the processor among one another are also required.

So that the inter-processor communication SW (abbreviated as IPK-SW) has knowledge about the available channels in the system, these (during operation and/or during the system run-up) are deposited in a data base (distributed or non-distributed) of which a copy is stored on magnetic disc. The establishment of these networking data ~~ensues~~ occurs implicitly via a corresponding command (for example create...) to the administration SW for establishing an additional processor platform, i.e. the operator need not administer the communication relationships of the processor platforms.

The processor networking in the system has hitherto been rigidly defined. That part of the administration SW that administers the communication channels between the processors in the data base (this part can, for example, be referred to as a facility control SW or a facility control component) is implemented such that, given establishment of a new processor, it generates precisely the networking rigidly prescribed for this processor type, i.e. rigidly prescribed for a processor type in the code of the facility SW. However, the maximum system expansion (maximum plurality of processors) for all processor types is thus also determined in advance on the basis of the fixed channel networking. All modifications of the processor networking (new types of processors, new communication channels between processors or modifications of the type of a channel) require modifications in the facility control SW that is responsible for the establishment of the channels in the data base. The resulting modification ~~outlay~~ expense is substantial.

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SUMMARY OF THE INVENTION

~~The invention is based on the object of specifying a facility control component that avoids said disadvantages.~~

~~This object is achieved by a facility control component according to claim 1.~~

Advantages of the inventive solution:

- The maximum system expansion is no longer fixed
- The channel networking is not statically defined and, thus, neither is the maximum system expansion.
- The administration SW is now independent of the network topology.

All modifications of the processor networkings (new types of processors, new communication channels between processors) now no longer require any modifications of that part of the administration SW that is responsible for the establishment of the channels in the data base.

An exemplary embodiment of the invention is explained in greater detail below on the basis of the ~~drawing~~ drawings, whereby the drawings comprises two Figures.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows an exemplary table with reference whereto the SW controls the establishment of a system component (for example, processor platform) in view of the channel networking;

FIG. 2 shows an exemplary channel networking that must be produced when establishing a new system component of the type C.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A master processor contains the administration SW and the static table. In FIG. 2, those channels that serve the master processor for distribution of the DB (or parts of the DB) onto the other processors (load channels) are not shown. These channels are not contained in the static table of FIG. 1 and are automatically setup upon initial system runup.

(1) At the design time: definition of formal criteria dependent on

a) processor type: (the processor type serves for distinguishing between different processor platforms with different HW and/or SW functionalities)

b) channel type: (the channel type serves for distinguishing between various transmission characteristics: for example, bandwidth and different employment resulting therefrom (for example, high band widths for loading code and data, low, medium bandwidth but burst-like traffic for

switching-oriented messages) and for assuring protection/security demands: due to separate communication relationships for security-oriented messages and switching-oriented messages, a mutual influencing should be precluded so that, for example, it can also be guaranteed given a high switching-oriented load that failure messages of the security technology can be transmitted)

(2) At the design time: statistical declaration of the networking of processors with formal criteria:

in the declaration, which ~~ensues~~ occurs in a programming language suitable for the later generation of the program system, the entire networking topology for all possible platform types of the system is defined with the formal criteria listed above by way of example. The table according to FIG. 1 shows an exemplary content of ~~said~~ the declaration (there are processors of the type A, B and C as well as channels of the type 1, 2, 3 and 4).

The table in FIG. 1 is to be read as follows:

* Processor type 1: processor type of the processor to be newly established
* Processor type 2: processor type with which the processor type to be established has a communication relationship
* Channel type: characterizes the communication channel that is to be established between processor type 1 and processor type 2.

(3) At the compilation/and linking time of the system program system (computer system program system):

generating a table (exemplary table: see FIG. 1) on the basis of the declarations at the design time. Deposit of the table in the DB that is then loaded onto the master processor upon run-up.

(4) At the run time: simply processing the table: this procedure is illustrated in FIG. 2, for example on the basis of the establishment of a new platform during operation (see: "create process (Type C)").

In the exemplary table of FIG. 1, the lines printed in bold face are processed in order to subsequently work corresponding facility description data (networking data) into the DB that serve the local IPK-SW later for establishing the

channels shown with broken lines. In order to find the entry into the table, the administration SW of the processor 1 is handed the information about the type of processor platform to be established, "Type C" here, via the command "create processor (Type C)". The administration SW now additionally observes that line of the table wherein the Type C occurs for the first time in the first column. The line instruction SW to establish a channel of the type 4 for a processor of the Type B that has already been established. Subsequently, the SW determines the processor or processors of the Type B already established on the basis of the configuration data already present in the DB, namely processor 2 and processor 5 in this case, and stores corresponding networking data in the DB on the basis of the particulars in the Table line (working the networking data into the DB). Subsequently, the SW considers the next line and processes this line according to the same strategy.

After ~~said~~ working-in, the administration SW instructs the DB management system to distribute ~~said~~ networking data onto the DBs of the remaining platforms (processors) of the system. Finally, the administration SW triggers the IPK-SW of a platform, which subsequently reads the networking data relevant for the platform from the DB and initiates the settings (for example, channel bandwidth, channel identifier, channel employment) on the platform that are required for the networking data.

When a new platform (not a new platform type!) is established with new channels during operation, thus, the networking description data are first introduced into the DB, are then distributed onto the participating platforms, and the IPK-SW receives a trigger message thereat that a new platform was established and to undertake the required settings thereat.

Upon initial run-up and differing from the example that has been explained, the entire table of FIG. 1 is processed.

It derives from what has been said that the SW that implements the working of the networking data into the DB is independent of the type of processor platform or, respectively, of the type of channel that is to be established. The entire working-in procedure is thus exclusively table-controlled.

Abbreviations Employed:

DB:	Database
HW:	Hardware
IPK-SW:	Interprocessor communication SW
SW:	Software

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